

Application/Control Number: 10/649,477

Page 2

Art Unit: 3700

CLMPTO

08/26/03

DB

CLAIMS 1-10 HAS BEEN CANCELED

BEST AVAILABLE COPY

Art Unit: 3700

Rule 11  
1.126 x.

(New) A turbocharger (1) comprising:  
a turbine housing (2), with  
at least one supply channel means (9) in said housing  
(2) for supplying said exhaust gas;

wherein at least one turbine rotor (4) rotatably  
supported within said housing (2), said supply channel  
means (9) being arranged to supply said exhaust gas to said  
turbine rotor (4) in order to rotate it;

spacer means (16) forming a passage of variable cross-  
section between said supply channel means (9) and said  
turbine rotor (4) in order to control the amount of exhaust  
gas admitted to said turbine rotor (4), said means  
including

a plurality of vanes (7) of predetermined width  
distributed in an annular vane space (13) of approximately  
said width around said turbine rotor (4) having two axial  
ends to form a passage between them for admitting exhaust  
gas to said turbine rotor (4), each vane (7) being pivoted  
about an axis to enable control of the amount of exhaust  
gas,

a vane support ring member (6) supporting said axes of  
said vanes (7), said vane support ring member (6) defining  
one axial end of said annular vane space (13) by a first  
circumferential surface,

a housing ring (15) facing and being spaced from said  
support ring member (6) by said width to define the other

Art Unit: 3700

axial end of said annular vane space (13) by a second circumferential surface, and

wherein at least two spacer means (16) integrally formed on at least one of said circumferential surfaces of ring members said housing ring (15) or said support ring member (6), and being distributed over its respective circumferential surface to ensure said width of said vane space.

12. (New) The turbocharger (1) according to claim 1, wherein said spacer means (16) are integrally formed on said vane support ring member (6).

13. (New) The turbocharger (1) according to claim 1, wherein at least one of said ring members (6 or 15) is of cast metal, said spacer means (16) being integrally cast.

14. (New) The turbocharger (1) according to claim 1, wherein said spacer means (16) are integrally formed in an outer circumferential border zone of said circumferential surface of at least one of said ring members (6 or 15).

15. (New) The turbocharger (1) according to claim 1, wherein at least one of said ring members (6 or 15) includes a radial outer circumferential border area of said circumferential surface, and a radial inner circumferential area of said circumferential surface defining a radial plane, said radial outer circumferential border area shrinking back from said radial plane.

Art Unit: 3700

16 15  
6. (New) The turbocharger (1) according to claim 5,  
wherein said spacer means (16) are arranged in said radial  
outer circumferential border area of said circumferential  
surface.

17 15  
7. (New) The turbocharger (1) according to claim 5,  
wherein said radial outer circumferential border area is  
provided on said vane support ring member (5).

18 11  
8. (New) The turbocharger (1) according to claim 1,  
wherein said spacer means (16) are elongated.

19 11  
9. (New) The turbocharger (1) according to claim 1,  
wherein said spacer means (16) are vane-shaped.

20 11  
10. (New) The turbocharger (1) according to claim 1,  
wherein said spacer means (16) are oriented substantially  
in a tangential direction with respect to the ring member.

21 11  
11. (New) The turbocharger (1) according to claim 1,  
wherein at least part of said spacer means (16) has a bore  
for passing a connection bolt through.

22 21  
12. (New) The turbocharger (1) according to claim 1,  
wherein said bolt is connected to the opposite ring member.

23  
13. (New) A vane ring for a turbocharger comprising:  
an annular surface on both sides of a vane support ring  
member (6);

Art Unit: 3700

a plurality of bores (20) distributed around the circumference of a passage in said annular surface for allowing passage of a plurality of vane (7) shafts (8);

wherein spacer means (16) integrally formed on said annular surface are distributed over the circumference of said annular surface.

<sup>24</sup>  
~~14~~. (New) The vane ring according to claim <sup>23</sup>~~13~~, wherein said spacer means (16) are elongated.

<sup>25</sup>  
~~15~~. (New) The vane ring according to claim <sup>24</sup>~~14~~, wherein said spacer means (16) are vane-shaped.

<sup>26</sup>  
~~16~~. (New) The vane ring according to claim <sup>24</sup>~~14~~, wherein said spacer means (16) are approximately oriented in tangential direction of said ring.

<sup>27</sup>  
~~17~~. (New) The vane ring according to claim <sup>23</sup>~~13~~, wherein said vane ring is of cast metal, and wherein the spacer means (16) is cast with said vane ring.

<sup>28</sup>  
~~18~~. (New) The vane ring according to claim <sup>27</sup>~~17~~, wherein said vane ring and said spacer means (16) are formed as a precision cast part.

<sup>29</sup>  
~~19~~. (New) The vane ring according to claim <sup>23</sup>~~13~~, further comprising a radial outer circumferential border area of said circumferential surface, and a radial inner circumferential area of said circumferential surface defining a radial plane, said radial outer circumferential border area shrinking back from said radial plane.

Art Unit: 3700

30  
~~28~~

(New) The vane ring according to claim <sup>29</sup>~~9~~, wherein said spacer means (16) are integrally formed in said radial outer circumferential border area.

31  
~~29~~

(New) The vane ring according to claim <sup>23</sup>~~9~~, wherein at least part of said spacer means (16) has a bore (18) for passage of a connection bolt.

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☐ BLACK BORDERS

☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES

☐ FADED TEXT OR DRAWING

☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING

☐ SKEWED/SLANTED IMAGES

☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS

☐ GRAY SCALE DOCUMENTS

☐ LINES OR MARKS ON ORIGINAL DOCUMENT

☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY

☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**